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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,131	02/11/2002	Takashi Umemoto	020170	3535

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EXAMINER

LAM, CATHY FONG FONG

ART UNIT PAPER NUMBER

1775

DATE MAILED: 02/06/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/071,131

Applicant(s)

UMEMOTO ET AL.

Examiner

Cathy Lam

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 6-9, 16-19 and 24-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 10-15 and 20-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11th Feb. 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-5, 10-15, 20-23, drawn to a composite device, classified in class 428, subclass 210.
- II. Claims 6-9, 16-19, 24-26, drawn to a process for producing a composite device, classified in class 156, subclass 89+.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by a different process such as by laminating the magnetic layers, the intermediate layer and the dielectric layers together, then bake the laminate until all layers are dried. The process as claimed can be used to make a different product such as a construction block.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Atty: Donald Hanson on 29th Jan 2003 a provisional election was made with traverse to prosecute the invention of group I, claims 1-5, 10-15, 20-23. Affirmation of this election must be made by applicant in replying to this Office action. Claims 6-9, 16-19, and 24-26 are withdrawn from further

consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

6. Claims 10 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 10, line 8 the phrase "ceramic layer as arranged" should be changed to -- ceramic layer is arranged --.

Claim 15 is vague and indefinite at the end of the claim, as it is unclear the phrase "as other green sheet for making the other ceramic layer at a joint thereof with the other green sheet" is referring to? Applicant initially uses "first ceramic layer and a second ceramic layer" but changes to "green sheet" and "other ceramic layer".

Applicant is required to be consistently throughout.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-5 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ryugo et al (US 6337123).

Ryugo discloses a multilayered ceramic substrate comprised of at least two green sheets having different ceramic materials, an intermediate layer and conductive material.

The two green sheets are inorganic materials such as dielectric ceramics and magnetic ceramics (col 7 L 13-17). Green sheets are different, that is one green sheet is dielectric ceramic and the other is a magnetic ceramic. The intermediate layer is a shrinkage inhibiting layer which is placed between the two (different) green sheets (col 2 L 60-65).

The shrinkage inhibiting green sheet is an inorganic material and has voids in an unsintered state. The ceramic materials contained in the substrate green sheets

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produce fused glass by firing and the fused glass is absorbed by diffusion into the voids of the inorganic material (col 2 L 45-49).

Conductive material which constitutes the wiring conductor is formed onto the surfaces of the ceramic substrates and the shrinkage inhibiting layer (col 3 L 15-20).

Ryugo is silent about the intermediate layer having varying composition in the direction of thickness nor does it teach the specific resistance. However, in view of Ryugo's teaching, the intermediate layer disclosed by Ryugo would have different shrinkage rates on the opposite surfaces, because the glass material from the two different green sheets from both sides permeates into the porous inorganic intermediate layer during firing. Therefore, the shrinkage rates between the two green sheets and the intermediate layer at the interfaces should be the same. It would also be obvious that the prior art intermediate layer has the same specific resistance because the intermediate layer includes both ferrite material and dielectric material which meets the invention.

10. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al (US 5476728).

Nakano discloses a multilayer circuit structure comprised of a plurality of magnetic layers (131), a plurality of non-magnetic insulating layer (121), conductor layers and an intermediate layer (104) (Fig. 21).

Conductor layers such as electrodes (125) and conductor layers (135) are formed within the dielectric layers and magnetic layers, respectively (co 11 L 54-61).

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The intermediate layer (104) is formed between the magnetic layers (131) and the non-magnetic insulating layers are dielectric layers such as TiO_2 and Al_2O_3 , etc. (col 13 L 42-50).

The intermediate layer (104) has a coefficient of linear expansion of the magnetic material and the non-magnetic insulating material (col 3 L 11-21). The intermediate layer is preferred to have half magnetic material and half non-magnetic material (col 10 L 38-44).

Nakano is silent about the compositional distribution of the intermediate layer. However in view of Nakano's teaching, one skill in the art would fabricate an intermediate layer which has a close composition at the interface because it would minimize thermal stresses during firing.

11. Claims 10-15 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryugo et al (US 6337123).

Ryugo teaches a green composite laminate comprised of a plurality of first substrate green sheets (48), a plurality of second substrate green sheets (49), and a plurality of shrinkage inhibiting green sheet (50).

The first and second green sheets are alternately arranged and having a shrinkage inhibiting green sheet (50) laminated on each of the green sheet surface (col 10 L 24-35 & Fig. 5).

In view of Ryugo's teaching, one skill in the art would fabricate a ceramic laminate having two different green (ceramic) materials and an intermediate layer between the different green materials because the intermediate layer absorbs the two

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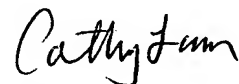
different green materials would help eliminate thermal stresses and peeling during firing process.

Therefore, it would have been obvious in view of the prior art that one would modify the prior art and use a similar idea to fabricate a multilayer ceramic laminate which has different green sheets arrangements because it is a matter of design choice.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (703) 308-2418. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9604 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Cathy Lam
Primary Examiner
Art Unit 1775

cfl
January 31, 2003